RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT FOR THE SEPTEMBER 27, 1996 *JULIE N* OIL SPILL

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INTRODUCTION CHAPTER 1

1.1 PURPOSE

This draft Restoration Plan and Environmental Assessment (RP/EA) has been prepared by state and federal natural resource Trustees[1] as a proposal for the restoration of natural resources and public use services injured by the *Julie N* oil spill on September 27, 1996. The objective of this proposal is to make the public whole for injuries to natural resources and natural resource services resulting from the *Julie N* oil spill by returning the injured natural resources and natural resource services to their baseline conditions and compensating for interim losses.

It is the Trustees' responsibility pursuant to the Oil Pollution Act of 1990 (33 U.S.C. § 2706, *et seq*.) ("OPA") to determine the nature and extent of natural resource injuries, select appropriate restoration projects, and implement or oversee restoration. This document presents the Trustees' estimates of exposure/injury and service losses (Chapter Three) caused by the *Julie N* spill and the Trustees' restoration proposal (Section 1.5 below and Chapter Four). Implementation of the restoration proposal will be in association with a settlement that the Trustees have entered into with Amity Product Carriers, Inc., the responsible party under OPA for the *Julie N* spill ("RP").

The primary purpose of this draft RP/EA is to inform the public of and to solicit public comment on the Trustees' restoration proposal. As described in detail below, this proposal includes a project designed to reduce the amount of pollutants discharged into the Fore River, wetland and bird habitat restoration projects in the vicinity of the Fore River and Casco Bay, and the construction of a one-mile recreational trail along the Fore River. This draft RP/EA, along with the Consent Decree between the Trustees and the RP, will be made available to the public for a 45-day comment period following the publication of a notice of the availability of such documents in the Federal Register and the Portland Press Herald. Within fifteen days of the notice of availability, the Trustees will hold a public meeting to present the contents of the draft RP/EA and Consent Decree. Details

[1] Maine Department of Environmental Protection ("MDEP"); Maine Department of Conservation ("MDOC"); Maine Department of Inland Fisheries and Wildlife ("MDIF&W"); Maine Department of Marine Resources ("MDMR"); U.S. Department of Commerce/ National Oceanic and Atmospheric Association ("NOAA"); and the U.S. Department of the Interior ("DOI")/U.S. Fish and Wildlife Service ("USFWS")

regarding the time and location of the public meeting may be obtained from the MDEP's Southern Maine Regional Office at 207-822-6300. The deadline for submitting written comments on the draft RP/EA and Consent Decree will be specified in the notice of availability. Written comments should be sent to:

Donald G. Frankel
U.S. Department of Justice
Environmental and Natural Resources Division
Environmental Enforcement Section
Boston Field Office
One Gateway Center
Suite 616
Newton, MA 02458

The Trustees will consider written comments received during the public comment period prior to their finalizing the draft RP/EA and Consent Decree.

An administrative record containing a copy of the public documents in this matter is available for inspection by the public during normal business hours at MDEP's Southern Maine Regional Office, 312 Canco Road, Portland, Maine.

1.2 OVERVIEW OF THE *JULIE N* OIL SPILL

At approximately 11:05 A.M. on September 27, 1996, the oil tanker *Julie N*, inbound with a cargo of 8.8 million gallons of #2 fuel oil, struck the south side of the Million Dollar Bridge spanning Portland Harbor between Portland and South Portland as it went through the draw span. Following the collision, the vessel proceeded one mile up the Fore River to the Rolling Mills terminal where it was boomed off. In the collision with the bridge, the *Julie N* sustained a substantial hole to its port bow area. The forward bunker tank lost approximately 93,198 gallons of IFO 380 heavy fuel oil. The #1 port cargo tank lost approximately 86,436 gallons of #2 diesel, totaling 179,634 gallons of spilled oil. High winds and extremely high tides on September 28th and 29th caused an unspecified amount of oil to be released from the boomed area and to be carried into the upper Fore River and Stroudwater Marsh area, including Long Creek. The Portland side of the river was more heavily oiled than the South Portland side, which had areas that remained almost oil-free. Recovery efforts continued until clean up was declared complete on December 2, 1996; the final tally indicated that while 140,976 gallons of oil were recovered, approximately 38,618 gallons of oil were lost to the environment.

1.3 OVERVIEW OF OPA REQUIREMENTS

A natural resource damage assessment conducted pursuant to OPA and the regulations promulgated thereunder at 15 C.F.R. Part 990, consists of three phases: 1) Preassessment; 2) Restoration Planning; and 3) Restoration Implementation. OPA authorizes state and federal natural resource trustees to initiate a damage assessment when, among other requirements, natural resources may have been injured and/or natural resource services impaired as a result of the incident.

OPA regulations provide specific definitions for the following terms:

- "Injury" is "an observable or measurable adverse change in a natural resource or impairment of a natural resource service";
- "Natural resources" are "land, fish, wildlife, biota, air, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States, any state or local government or Indian tribe"; and
- "Natural resource services" are "functions performed by a natural resource for the benefit of another resource and/or the public".

Based on information collected during the Preassessment phase, the Trustees must make a preliminary determination whether natural resources or natural resource services have been injured and/or are threatened by ongoing injury. If injuries have occurred, and feasible restoration alternatives exist to address such injuries, trustees may decide to proceed with the Restoration Planning phase.

The purpose of the Restoration Planning phase is to evaluate potential injuries to natural resources and natural resource services, and to use that information to determine the need for and the appropriate scale of restoration actions. The goal of injury assessment is to determine the nature and extent of injuries to natural resources and services, thus providing a factual basis for evaluating the need for, type of and scale of restoration actions. As the injury assessment progresses, trustees develop a plan for restoring the injured natural resources and services. Trustees must identify a reasonable range of restoration alternatives, evaluate and select the preferred alternative(s), develop a draft Restoration Plan/Environmental Assessment, solicit public comment on the Plan, and consider and respond to those comments before issuing a final Restoration Plan/Environmental Assessment.

Natural resource trustees may settle claims for natural resource damages under OPA at any time during the damage assessment process, provided that the settlement is:1) adequate in the judgment of the trustees to satisfy the goals of OPA, and 2) fair, reasonable, and in the public interest, with particular consideration of the adequacy of the settlement to restore, replace, rehabilitate, or acquire the equivalent of the injured natural resources and services. Sums recovered

in settlement of such claims, other than reimbursement of trustee costs, may only be expended in accordance with a restoration plan, which may be set forth in whole or in part in a consent decree or other settlement agreement, which is made available for public review.

1.4 NEPA COMPLIANCE

Any restoration of natural resources under OPA must comply with the National Environmental Policy Act ("NEPA") (40 C.F.R. § 1500, *et seq*.) and the Council on Environmental Quality ("CEQ") regulations implementing NEPA. In compliance with NEPA and the CEQ regulations, this draft RP/EA summarizes the current environmental setting, describes the purpose and need for action, identifies alternative actions, assesses their applicability and environmental consequences, and summarizes opportunities for public participation in the decision-making process.

1.5 TRUSTEE RESTORATION PROPOSAL

In response to the *Julie N* oil spill, the Trustees initiated natural resource damage assessment efforts pursuant to OPA and the Maine Oil Discharge and Pollution Prevention Act (38 MSRA § 541, *et seq.*, 1989 and sup. 1998). The Trustees and representatives for RP cooperatively conducted and reviewed the results of 16 preassessment studies to make a preliminary determination whether natural resources or natural resource services were injured and/or threatened by ongoing injury due to the *Julie N* spill. Three technical working groups, consisting of representatives from the Trustees and the RP, were formed to address the following potential injury categories: marine communities, wetlands/birds, and lost public uses. These preassessment studies and the related work of the technical working groups are described in detail in the *Julie N* Preassessment Data Report (PDR), which was finalized in September 1998 and is part of the administrative record.

The Trustees have estimated the nature and extent of the natural resources exposed to and/or injured and the lost public uses resulting from the *Julie N* oil spill. The Trustees believe that further injury assessment would result in the confirmation of such injuries to natural resources and natural resource services. However, in order to move more quickly towards the goal of restoration, the Trustees have selected and are proposing a set of restoration projects that they believe will adequately restore the injured natural resources and compensate the public for the lost uses resulting from the *Julie N* spill. The Trustees believe that it is in the public's interest to settle with the RP for the costs associated with the implementation of these projects in lieu of undertaking full assessment-type studies.

The Trustees selected the following projects to include in their restoration proposal after carefully considering a range of restoration alternatives. For marine communities, the "Portland Oil and Grease Removal Project" is proposed to reduce the discharge of oil and greases to the Fore River and thereby enhance the marine environment's overall quality. For wetlands/birds, the Trustees have selected projects which have as their goals the enhancement of approximately 130 acres of salt marsh habitat for bird species affected by the *Julie N* spill and the acquisition and protection of marine bird nesting habitat. For lost public uses, the Trustees propose the construction of a one-mile segment of recreational trail along the Fore River.

The RP has agreed to pay $1,000,000 to the Trustees for the estimated costs of implementing these proposed projects, including the costs to the Trustees for oversight during the implementation of the projects. The title of the specific projects and the breakdown of the $1,000,000 are shown in Exhibit 1-1 below. The cost figures set forth below are estimates. The actual costs incurred for the projects and oversight may be somewhat higher or lower. The projects themselves are described in greater detail in Chapter 4 below.

Exhibit 1-1

SUMMARY OF PROPOSED *Julie N* OIL SPILL RESTORATION PROJECTS AND COSTS

Resource/Service	Proposed Restoration Project	Total Cost to RP
Marine Community	Portland Oil and Grease Removal Project	$350,000
Wetlands/Birds	Wetland/Bird Habitat Restoration Projects	$475,000
Lost Public Uses	Fore River Trail Project	$125,000
Total Estimated Cost of Restoration Projects		**$950,000**
Total Estimated Trustee Oversight Costs		**$ 50,000**
Total Restoration and Oversight Costs Payment by RP to Trustees		**$1,000,000**

AFFECTED ENVIRONMENT CHAPTER 2

The area most heavily affected by the *Julie N* spill was a portion of the Fore River extending from its outlet at the entrance to Portland Harbor upstream for a distance of approximately 3 miles (see Exhibit 2-1). This area also includes Long Creek, which flows into the Fore River upstream of the I-295 Bridge. The Fore River is located along the southern coast of Maine at the southwest end of Casco Bay and discharges into Casco Bay at the entrance of Portland Harbor. Portland Harbor functions as an estuary where the freshwater from the Fore River and sea water from Casco Bay mix.

Portland Harbor is a major port in New England, and is the largest commercial port in Maine. It is also used extensively by the public for recreational boating and fishing, and for ferry, tour and whale-watching trips. Casco Bay has been designated an estuary of national significance and is included in the USEPA's National Estuary Program. Its shoreline covers 578 miles, including 785 islands, islets, and exposed ledges. Casco Bay's water surface encompasses nearly 200 square miles, and it provides 229 square miles of marine habitat. Twelve significant lake and river systems feed the bay, including Sebago Lake and four major tributaries, including the Fore River.

Natural resources are abundant in the Fore River and its tributaries. A diverse array of intertidal marine vegetation, including *Spartina alterniflora*, *Spartina patens*, *Phragmites* sp., growing on soft, unconsolidated sediment substrate, and *Fucus* sp. and *Ascophyllum* sp., covering harder, rockier surfaces, is found in the Fore River. Similarly, "vertical wall communities", comprised of hydroids, stalked ascidians, barnacles, anemones and mussels, exist on vertical walls in the river such as granite, concrete, steel and wood pilings and crib work.

The varied marine habitats, including tidal mud flats and the sloped walls of the federal channel of the Fore River, support many benthic species including marine worms, green crabs, mussels, starfish, sponges, periwinkles, clams, and mussels. Lobster burrows line the walls of the federal channel, particularly near the mouth of the harbor.

Salt marsh habitat can be found in the area of the Fore River above Veteran's Memorial Bridge. The salt marsh provides important habitat for numerous sea bird, waterfowl, wading bird species, fin fish, shellfish, and crustaceans.

3.1 INTRODUCTION

The Trustees have estimated the nature and extent of the natural resources exposed to and/or injured by oil from the *Julie N* and the lost public uses resulting from *Julie N* oil spill. The affected resource/resource service categories considered by the Trustees include the following:

- marine communities;
- wetlands/birds; and
- public uses.

The Trustees' estimates are described on a resource-specific basis below and are summarized in Exhibit 3-1.

3.2 MARINE COMMUNITIES

3.2.1 Macroalgae

Macroalgae are marine plants that are important as primary producers and as structural components of intertidal and subtidal marine habitat. As a result of spill response efforts, oiled macroalgae was removed from shoreline areas in the Fore River. The total amount of macroalgae reported as having been removed is 1,143 square feet and 340 pounds wet weight. Additional macroalgae injury was accounted for by considering macroalgae as part of the vertical wall communities discussed below.

3.2.2 Blue Mussels

Polycyclic Aromatic Hydrocarbons ("PAHs") concentrations in mussels collected from the Fore River were generally 10-30 times higher after the oil spill than concentrations found in Fore River mussels collected from the same areas in 1994. Total PAH concentrations in mussel tissue

ranged from 27,000 to 290,000 ppb (dry weight). With the exception of two samples, one from Fore River Cove and one from Mill Cove, fingerprinting analyses of Fore River mussel samples indicated that the PAHs were consistent with *Julie N* oil.

3.2.3 Softshell Clams

Total PAH concentrations were up to eight times higher in softshell clams collected in oiled areas of the Fore River (e.g. Thompson Point) relative to softshell clams from Fore River areas receiving little-to-no Julie N oil contamination (i.e. Fore River Cove). Total PAH concentrations in softshell clam tissue ranged from 14,000 to 110,000 ppb (dry weight). Fingerprinting analyses of all Fore River softshell clam samples indicated that the PAHs were consistent with Julie N oil.

3.2.4 Vertical Wall Communities

Vertical wall communities are comprised of plants and animals (hydroids, stalked ascidians, anemones, macroalgae and other marine organisms) which attach themselves to pilings and other hard, vertical surfaces. The Trustees' injury estimates for vertical wall communities represent the areal extent of such surfaces that were heavily oiled and cleaned by spraying the surfaces with hot water. The linear distance of such surfaces, estimated to be approximately 11,558 feet, was multiplied by the tidal range of 10 feet to provide an estimate of the areal extent of affected vertical wall communities, or approximately 115,580 square feet.

3.2.5 Sediment

Sediment can be a major repository for contaminants entering marine ecosystems. Sediment contamination has the potential to adversely affect resident biota associated with the sediment (*e.g.* infaunal organisms such as marine worms and clams) and higher organisms dependent upon those biota as a prey (*e.g.*, fish, birds). The Trustees observed oil in intertidal sediments in the vicinity of Thompson's Point and at depths ranging from 2 to 6 cm. Out of 25 sediment samples taken from selected intertidal areas throughout the area affected by the *Julie N* spill, only 4 of those analyzed contained PAHs attributable to *Julie N* oil. Total PAH concentrations for these 4 sediment samples ranged from 3,600 to 67,000 ppb (dry weight) and they were all collected in the vicinity of Thompson's Point, Long Creek and Airport Cove. It should be noted, however, that all of the sediment samples were collected after the October 20, 1996, Northeaster storm, which may have resulted in the resuspension and redistribution of oil-contaminated sediments in the Fore River.

3.3 WETLANDS/BIRDS

3.3.1 Wetlands

A detailed analysis of the wetlands oiled in the Fore River was conducted in 1996 and 1997 through a combined aerial survey and ground-truthing approach. Photographs and ground-truth data were used to map the aerial extent of wetland vegetation. Approximately 25.6 acres of intertidal emergent wetland in the Fore River were exposed to *Julie N* oil.

3.3.2 Birds

Between September 29 and November 19, 1996, 1,679 cumulative observations of oiled birds (80% seagulls; 9% double-crested cormorants; the remainder were black ducks, wading birds, and shorebirds) were documented in the Fore River area. Since these were cumulative observations made during daily surveys, some oiled birds were probably counted more than once. Eighty-seven birds were counted as "heavily oiled", 508 as "moderately oiled" and 1,084 as "lightly oiled". Twenty-eight live oiled birds were processed through the rehabilitation center; 15 died, 12 were released, and one was held because of an injury limiting its flight capability. In addition, 12 birds were already dead when they were brought into the rehabilitation center.

3.4 PUBLIC USES

Impacts to the public's use of spill-contaminated resources in the Fore River/Portland Harbor and western Casco Bay areas were varied, increasing with proximity to the spill site and heavily contaminated areas.

3.4.1 Ferry Boat Trips

To assess the losses incurred by the *Julie N* oil spill, the Trustees consulted with spokespersons at the two ferry lines servicing Portland Harbor: Casco Bay Lines and Prince of Fundy Cruises, Limited. While Casco Bay Line ferries were not impacted, service provided by the Prince of Fundy Cruises, Limited ferry, the *Scotia Prince*, was seriously disrupted from September 27-29, resulting in 250 lost ferry boat passenger/person trips and 2,700 diminished use ferry boat passenger/person trips.

3.4.2 Wayneflete School Trail Activities

The oil impacted marshes adjacent to the Wayneflete School public trail system. Based on discussions with Wayneflete School regarding the recreational usage of the trails, the Trustees estimated the number of lost and diminished use trips at the Wayneflete School from the time of the spill through June 30,1997 at 1,380 lost person trips and 1,380 diminished use person trips.

3.4.3 Party/Charter Boat Recreational Fishing Trips

The spill occurred as marine sport fishing approached the end of its normal season. The Trustees consulted with captains of three vessels which charter recreational fishing trips to assess the losses incurred by the *Julie N* oil spill. Patronage of party/charter boat recreational fishing businesses was lighter than normal because of the spill. Based upon data collected, an estimated 124 party/charter boat recreational fishing person trips were lost in late September and October of 1996.

3.4.4 Recreational Boating Trips

Casco Bay recreational boating season generally ends in late September, with the season extending for another month in the Fore River/Portland Harbor area. Recreational boats docked at marinas located outside the spill response area were generally not affected by vessel traffic restrictions. Marinas and mooring areas located within the response areas experienced closures, ranging from several days in duration on up to six weeks (in the case of Merrill's Marina). Adjusting for the uncertainties of weather, the Trustees have estimated that approximately 4,862 recreational boating person trips would have been taken had the spill not occurred.

3.4.5 Tour Boat Trips

The Trustees consulted with the owner of House Island Tours and Charters to assess the losses incurred by the *Julie N* oil spill. Educational tour boat trips to House Island for approximately 300 secondary school students were canceled due to the spill.

3.4.6 Whale Watching Trips

The Trustees consulted with the captain of the *Odyssey*, a whale watching boat, to assess the losses incurred by the *Julie N* oil spill. An estimated 225 whale watching person trips were lost during spill response/cleanup operations in late September and October.

3.5 SUMMARY OF *JULIE N* EXPOSURE/INJURY ESTIMATES

A summary of the Trustees' estimates of the nature and extent of the natural resources exposed to and/or injured by oil from the *Julie N* and the lost public uses resulting from *Julie N* oil spill is provided in Exhibit 3-1.

Exhibit 3-1

***JULIE N* OIL SPILL: SUMMARY OF EXPOSURE/INJURY ESTIMATES**

MARINE COMMUNITIES

Injured Resource/Service	Exposure
Marine Vegetation	1,143 sq. ft and 340 lbs. of vegetation cut and removed
Blue Mussels	Total PAH concentrations ranged from 27,000 - 290,000 ppb (dry weight)
Softshell Clams	Total PAH concentrations ranged from 14,000 - 110,000 ppb (dry weight)
Vertical Wall Communities	115,580 sq. ft. of vertical wall exposed to either heavy oiling and/or hot washing
Sediment	Four of the 25 sediment samples analyzed contained PAHs attributable to *Julie N* oil. Total PAH concentrations for these four sediment samples ranged from 3,600 to 67,000 ppb (dry weight)

WETLANDS AND BIRDS

Injured Resource/Service	Exposure
Wetlands	25.6 acres of wetlands lightly to heavily oiled
Birds	27 dead birds and 1,679 cumulative observations of birds with visible oiling

PUBLIC USE

Lost Public Uses	Service Losses and Interruptions	
	Lost Use	**Diminished Use**
Ferry Boat Trips	250 lost ferry trips	2,700 diminished ferry trips
Wayneflete School Trail Activities	1,380 lost trail activities trips	1,380 diminished trail activities trips
Party/Charter Boat Recreational Boating Trips	124 party/charter boat trips lost	
Recreational Boating Trips	4,862 lost person-day boating trips	
Tour Boat Trips	300 lost tour boat trips	
Whale Watching Trips	225 lost whale watching trips	

4.1 INTRODUCTION

The Trustees evaluated a range of compensatory restoration alternatives which would enhance the natural recovery of resources injured by the *Julie N* oil spill, and/or would provide additional resource services to compensate the public for losses pending natural recovery. In the following sections the preferred and non-preferred restoration alternatives for the three categories of affected natural resources and natural resource services (marine communities, wetlands/birds and lost public uses) are presented and discussed.

In evaluating the possible restoration alternatives, the Trustees have considered, among other things, the following:

- The extent to which each alternative is expected to meet the Trustees' goals and objectives of returning the injured natural resources and services to baseline and/or compensating for interim losses;
- The likelihood of success of each alternative;
- The extent to which each alternative will prevent future injury as a result of the incident, and avoid collateral injury as a result of implementing the alternative;
- The extent to which each alternative benefits more than one natural resource and/or service;
- The effect of each alternative on public health and safety; and
- The cost to carry out the alternative.

Information supporting the Trustees' selection of restoration alternatives is provided throughout the remainder of this chapter.

4.2 NO-ACTION ALTERNATIVE

NEPA requires the Trustees to evaluate the "no-action" alternative. Here, the "no-action" alternative would mean that the Trustees would take no direct action to restore injured natural resources or to compensate for lost services pending environmental recovery, relying instead solely on natural recovery for the achievement of restoration goals. While the Trustees believe that natural recovery will occur over varying time scales for the resources exposed to and/or injured by oil from the *Julie N* spill, the interim losses suffered would not be compensated for under a "no-action" alternative.

The Trustees' responsibility to seek compensation for interim losses is clearly set forth in OPA. Thus, while the Trustees consider natural recovery to be appropriate as a primary restoration option for all injuries resulting from the *Julie N* spill, they are seeking compensatory restoration for the interim losses as set forth in detail below.

4.3 RESTORATION ALTERNATIVES FOR MARINE COMMUNITY RESOURCES

4.3.1 Preferred Alternative: Portland Oil and Grease Removal Project

Project Description

The Portland Oil and Grease Removal Project includes capital purchases and improvements to assist the City of Portland in implementing an aggressive effort to reduce the discharge of oil and grease to the Fore River and other receiving waters. The project consists of the purchase of a new vacuum truck and the rehabilitation of an existing vacuum truck to enable the City to collect sediments contaminated with oil and grease from storm systems throughout the City. The project also includes the purchase of an articulating boom for an existing City truck that will enable the City to clean contaminated sediments from a greater portion of the sidewalk, street and median strip areas throughout the City. Absent the collection efforts that the City has committed to undertake with this equipment, the oil and grease contaminated sediments would be discharged into the Fore River and Portland Harbor. Contaminated sediments collected by the City will be disposed of at authorized solid waste management facilities.

Restoration Objectives

This project is intended to provide compensatory restoration for the marine resources that were exposed to and/or injured by *Julie N* oil by reducing the amounts of oil and grease discharged into the Fore River and Portland Harbor from the City of Portland.

Environmental and Socio-Economic Impacts

No adverse environmental or economic impacts are expected from this project.

Cost

The Trustees propose to implement this project with funds from the settlement with the RP. The estimated costs to fund this project are $350,000. The City of Portland will assume responsibility for operation and maintenance of the capital improvements purchased with settlement monies, and for the evaluation of the success of the project.

Evaluation

By reducing the storm water discharge of oil and grease contaminated sediments to the Fore River and Portland Harbor, this project would enhance the overall quality of the Fore River/Portland Harbor marine environment. In addition, the mobile equipment acquired for this project, such as the vacuum truck, would be used throughout the City of Portland. The substantial commitment by the City of Portland to aggressively use the new equipment throughout the City and to evaluate the success of the project also significantly enhances the value of this project. For these reasons, the Trustees believe that the Portland Oil and Grease Removal Project would adequately compensate for the marine community injuries and interim losses resulting from the *Julie N* spill, and have selected it as the preferred restoration alternative for marine community resources.

4.3.2 Non-Preferred Alternatives Discussion

The Trustees considered two alternatives for addressing marine community resource injuries and interim losses, but have identified both of them as "non-preferred". Both projects would provide for the installation of inline oil, grease and grit removal and filtration systems to separate and collect oils and greases from storm water prior to its discharge into the Fore River and Portland Harbor. One of the projects would treat storm water presently discharged into Casco Bay near Portland's East End Beach for a capital cost of approximately $175,000; the other project would treat storm water now discharged into the Fore River near Merrill's Marine Terminal for a capital cost of approximately $245,000. Neither of these projects would be effective for reducing oil and grease discharges absent the equipment to be purchased for the Portland Oil and Grease Removal Project, as the inline systems require a vacuum truck for removal of the sediments that they collect. Also, while each of these two projects would reduce the oil and grease discharged from one of the 30+ Portland discharge points into the Fore River, Back Cove and Casco Bay, the equipment from the Portland Oil and Grease Project will be used at all of the City's discharge points. Thus, the Portland Oil and Grease Project is preferable to these alternatives, since it is a stand-alone project that will compensate for the injuries and interim losses to marine communities and can more cost-effectively provide environmental benefits for marine communities in receiving waters throughout the Portland watershed.

4.4 RESTORATION ALTERNATIVES FOR WETLANDS AND BIRDS

4.4.1 Preferred Alternative: Wetland/Bird Habitat Restoration Projects

Project Description

To compensate for injuries and interim losses sustained by wetlands, waterfowl, wading birds, and shorebirds, the Trustees propose to enhance the productivity of a specific area of a salt marsh in Scarborough, Maine. Scarborough Marsh is located on the northwestern and southeastern sides of U.S. Highway 1 (US 1). The specific area of Scarborough Marsh that has been proposed for restoration is located to the northwest of US 1, near the intersection of US 1 and Milliken Road, and is locally known as the "Dunstan River Marsh". Scarborough Marsh encompasses 3,000 acres and is Maine's largest salt marsh. MDIF&W and USFWS consider it to be an important coastal wetland and waterbird habitat. USFWS has also identified this marsh as an important area for anadromous fish.

The Dunstan River Marsh has been degraded due to hydrological constraints and aggressively growing invasive species, such as reedgrass and cattail, which have replaced the naturally occurring *Spartina* and reduced the natural resource services provided by Scarborough Marsh. The Trustees propose to undertake a hydrological assessment of the Dunstan River Marsh to determine the most ecologically beneficial method for enhancing the site. The assessment will evaluate tidal hydrology both upstream and downstream of US 1; determine the degree of tidal restriction caused by the road; evaluate freshwater input to the system; and provide recommendations for restoring the natural hydrology of the system. Options that the Trustees would evaluate for restoring the marsh include adding an additional culvert under US 1, creating pannes and new tidal channels, and removing fill. The Trustees would determine the most effective combination of marsh improvement actions to implement subject to the specific physical, chemical, and biological requirements of the marsh.

To compensate for injuries and interim losses sustained by marine birds, namely various species of gulls, leach's storm petrel and cormorants, the Trustees propose to study the feasibility of acquiring and protecting marine bird nesting habitat in Casco Bay. The Maine Wildlife Habitat Initiative, a cooperative effort involving MDIF&W, USFWS and local conservation groups, would make recommendations to the Trustees for potential acquisitions. Funds from this proposed settlement would be used, with matching funds from other sources to the extent that such funds are available, to acquire appropriate nesting island habitat which becomes available for purchase.

Restoration Objectives

The *Julie N* oil spill resulted in the injury and/or interim loss of estuarine mudflats and intertidal emergent wetland habitats in the Fore River similar to those that would be enhanced through the implementation of this project. Waterfowl, wading birds, and shorebirds that were oiled as a result of the *Julie N* oil spill frequently use Scarborough Marsh. Following the spill, oiled water birds from the Fore River were observed in Scarborough Marsh. Scarborough Marsh has been identified as a high value habitat, so birds, wetlands, fish, and other animals in this area of Maine,

including the Fore River watershed, would benefit from this proposed habitat improvement. Marine birds that were oiled as a result of the *Julie N* oil spill use island nesting habitat in Casco Bay and therefore would benefit from any acquisition and protection of such habitat.

Environmental and Socio-Economic Impacts

Implementation of these projects would enhance bird/wetland habitats in the vicinity of the Fore River and Casco Bay. Certain construction activities that the Trustees are considering would cause some short-term environmental impacts. These include excavation of wetland areas for creation of tidal channels, short-term sedimentation due to road and marsh construction activities, and filling small wetland areas to create areas of additional open water in the marsh. These impacts would be minimized by early coordination between the Trustees and federal and state regulatory agencies and by direct oversight of the project by the Trustee agencies.

Cost

The Trustees propose to implement these projects with funds from the settlement with the RP. The estimated cost for the projects is $475,000, of which up to $25,000 could potentially be spent on the acquisition and protection of marine bird nesting habitat.

Evaluation

Scarborough Marsh near US 1 has been degraded due to hydrological constraints and invasive species. If these constraints are removed, the invasive species are controlled, along with other improvements, this area would provide additional habitat nesting, brood rearing, and foraging for black ducks and other bird species injured by the *Julie N* oil spill. In addition, the public would be compensated for Spartina wetland habitat that was exposed to the *Julie N* oil. This project's potential for success is high, based on similar work completed in other coastal marshes. It would benefit all wildlife, fish and invertebrates inhabiting the marsh.

Acquisition of island nesting habitat by the Trustees would compensate for injuries and interim losses to marine birds as a result of the *Julie N* oil spill. Based on the past successful acquisition and protection of marine bird nesting habitat by the Maine Wildlife Habitat Initiative, the potential for success of this project is very high.

For these reasons, the Trustees believe that these projects would adequately compensate for wetland and bird injuries and interim losses caused by the *Julie N* spill, and have selected them as the preferred restoration alternatives for wetlands and birds.

4.4.2 Non-Preferred Alternatives Discussion

The Trustees considered a salt marsh restoration project in Long Creek that would provide for the removal of fill and restoration of salt marsh in an area adjacent to I-295 along the Fore River. The site is approximately 4 acres in size and is owned by the State of Maine. The project would involve the removal of 53,000 cubic yards of fill and would create approximately 4 acres of salt marsh.

The Trustees believe that this project could also adequately address the injuries and interim losses to wetlands and birds exposed to oil from the *Julie N* spill. However, Portland International Jetport is located in South Portland adjacent to the Fore River and Jetport officials have expressed concern about any project there that might increase the number of birds within the flight path of planes flying into and out of the airport. Based on that concern, the Trustees have designated this project a "non-preferred" restoration alternative.

4.5 RESTORATION ALTERNATIVES FOR LOST PUBLIC USES

4.5.1 Preferred Alternative: Fore River Trail Project

Project Description

Portland Trails, a nonprofit organization, would construct a one-mile section to the Fore River Trail System, which is part of a planned 30-mile green way network connecting open space, shorelines, schools, businesses, and neighborhoods throughout the City of Portland, and along the banks of the Fore River. Ten miles of this network of trails already exist and are heavily used by the public. The proposed one-mile segment would link two existing trail systems, one that is part of the 85-acre Fore River Audubon Sanctuary and the other located on property owned by the Wayneflete School. The path of the trail would cross property owned by the City and several private property owners; easements across these properties have already been obtained for approximately 2/3 of the distance. The Maine Conservation Corps would do most of the trail construction work and volunteers would assist Portland Trails in obtaining any necessary permits or other approvals. Portland Trails would place a series of interpretive signs along the trail to inform visitors of the importance of preserving land, the ecology, natural, and cultural history of the area, as well as the oil spill and efforts to mitigate its effects. From Thompson's Point, subsequent proposed sections of trail would proceed past Merrill's Marine Terminal, under the new Casco Bay bridge and through the proposed Harbor View Park, linking up with the Eastern Promenade Trail via Commercial Street to circumnavigate the peninsula.

Restoration Objectives

The objective of this project is to compensate the public for the lost use of Portland Harbor and the Fore River during the *Julie N* oil spill. Oil was visible along the shoreline and in the Stroudwater Marsh following the spill. Construction of the trail and educational signage would enhance the visitation experience of future trail users by increasing usage and awareness of the sensitive ecology along the Fore River.

Environmental and Socio-Economic Impacts

No adverse environmental or economic impacts are expected from this project.

Cost

The Trustees propose to implement this project with funds from the settlement with the RP. The estimated cost for implementing this project is $125,000.

Evaluation

The proposed addition to the Fore River Trail System along an area of shoreline heavily oiled by the *Julie N* spill would provide a wide array of recreational and ecological benefits to the public. By linking two existing trail systems, the project would enhance the use and value of the entire trail system as a public recreational resource. The proposed trail segment would provide walking, biking, hiking, jogging, and scenic and wildlife viewing opportunities to the public. It would provide access to the scenic waterfront along the upper Fore River and would parallel a portion of an abandoned, historic canal. The right-of-way for the trail would also provide a corridor of preserved habitat for wildlife. The interpretive signs would enhance the recreational and ecological benefits provided by the proposed trail by educating the public and creating an outdoor classroom for use by area schools.

Portland Trails would plan, implement and manage the proposed trail segment. Because of the organization's experience in developing and managing existing trails, it is highly likely that the proposed project would be implemented successfully.

For these reasons, the Trustees believe that the Fore River Trail Project would adequately compensate for lost public uses resulting from the *Julie N* oil spill, and have selected it as the preferred restoration alternative for lost public uses.

4.5.2 Non-Preferred Alternatives Discussion

The Trustees considered a project consisting of the construction and installation of park infrastructure at the old touch down for the Million Dollar Bridge in South Portland (the "Thomas Knight Park Project"), but have designated it a "non-preferred" restoration alternative. Since the Casco Bay Bridge has opened, the Million Dollar Bridge has been dismantled and the City has

drafted plans to transform this section of the waterfront into a scenic coastal park. Although this project would provide adequate compensation for the lost public uses resulting from the *Julie N* oil spill, the Trustees believe that the Fore River Trail Project is preferable as a restoration alternative. The Trustees selected the Fore River Trail Project over this project because it would be constructed along a portion of the shoreline that was more heavily oiled by the *Julie N* spill and would provide more shoreline access points and educational opportunities for the public than this project. For these reasons, the Trustees have designated the Thomas Knight Park Project as a "non-preferred" restoration alternative.

The Trustees also considered an alternative consisting of the purchase of certain open spaces identified by the South Portland Land Trust that are adjacent to the South Portland Greenbelt and Pleasantdale Cove in South Portland. Pleasantdale Cove encompasses the area from the site of the Casco Bay Bridge, to the ends of Mildred, Chapel, and Chestnut Streets. The alternative calls for the purchase of open spaces adjacent to the Greenbelt area and the shoreline of Pleasantdale Cove. The Trustees prefer the Fore River Trail Project to this alternative because it would be constructed along a portion of the shoreline that was more heavily oiled by the *Julie N* spill and would provide more shoreline access and educational opportunities for the public. For these reasons, the Trustees have designated this project as a "non-preferred" restoration option.

4.6 ESSENTIAL FISH HABITAT CONSULTATION

The Magnuson-Stevens Act (16 U.S.C. 1801 et seq.) as amended and reauthorized by the Sustainable Fisheries Act (Public Law 104-297) established a program to promote the protection of essential fish habitat (EFH) in the review of projects conducted under Federal permits, licenses, or other authorities that affect or have the potential to affect such habitat. After EFH has been described and identified in fishery management plans by the regional fishery management councils, Federal agencies are obligated to consult with the Secretary of Commerce with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any EFH.

The Portland Oil and Grease Removal Project and the Fore River Trail Project will not adversely affect EFH as neither project involves the alteration of habitat. The Scarborough Marsh Restoration Project will take place in waters discharging into Saco Bay. Saco Bay has been designated EFH for one or more life stages of the following species: Atlantic salmon (Salmo salar), pollock (Pollachius virens), whiting (Merluccius bilinearis), red hake (Urophycis chuss), white hake (Urophycis tenuis), winter flounder (Pleuronectes americanus), yellowtail flounder (Pleuronectes ferruginea), windowpane flounder (Scopthalmus aquosus), American plaice (Hippoglossoides platessoides), ocean pout (Macrozoarces americanus), Atlantic halibut (Hippoglossus hippoglossus), Atlantic sea scallop (Placopecten magellanicus), Atlantic sea herring (Clupea harengus), bluefish (Pomatomus saltatrix), and Atlantic mackerel (Scomber scombrus). These species are managed by both the New England and Mid-Atlantic Fishery Management Councils under the following fishery management plans (FMP): Salmon; Northeast Multispecies; Atlantic Sea Scallop; Atlantic Herring; Bluefish; and Squid, Mackerel, and Butterfish FMPs.

The Scarborough Marsh Restoration Project described in Section 4.4.1 proposes to enhance a degraded salt marsh caused by tidal restrictions and aggressively growing invasive plant species such as reedgrass (Phragmites australis) and cattail (Typha angustifolia). Exact project details will not be determined until a thorough ecological and hydrological assessment has been conducted for the marsh system.The Trustees will consider options such as adding an additional culvert under U.S. Route 1, creating pannes and new tidal channels to increase tidal flow into the Phragmites and Typha dominated areas, and removing fill. These actions should serve to enhance tidal flow into these areas to reverse the spread of Phragmites and Typha and encourage the growth of typical salt marsh vegetation (e.g. Spartina spp.). Resident salt marsh fish species will directly benefit from the additional tidal flow to areas of the marsh that are now receiving only infrequent storm tides. Minor, temporary construction impacts associated with the various restoration options could cause short-term turbidity plumes in the water column of the Dunstan River. However, with the implementation of appropriate Best Management Practices, these impacts will be minimized. For the foregoing reasons, the Scarborough marsh restoration project will not adversely affect EFH.

After conceptual restoration project details were developed, the Trustees evaluated and coordinated their plans with the National Marine Fisheries Service Northeast Region to ensure no adverse impacts to EFH. If the proposed project plans are substantially revised or if new information becomes available that affects this determination then supplemental consultation will be undertaken.

4.7 SUMMARY OF PREFERRED RESTORATION ALTERNATIVES AND COSTS

The Trustees have selected compensatory restoration alternatives which they believe would enhance the natural recovery of resources injured by the *Julie N* oil spill, and/or would provide additional resource services to compensate the public for interim losses pending natural recovery. The Trustees believe that the four selected projects, the Portland Oil and Grease Removal Project, the two Wetland/Bird Habitat Restoration Projects and the Portland Trails Project, would adequately address the injuries and interim service losses resulting from the *Julie N* oil spill. In addition to the costs of implementing the preferred restoration alternatives, the Trustees must also recover any costs that they incur overseeing the implementation of the projects. Exhibit 4-1 presents the total estimate of all costs, including the estimated costs for implementing the selected restoration alternatives and the Trustees' estimate of their oversight costs. The cost figures set forth below are estimates. The actual costs incurred for the projects and oversight may be somewhat higher or lower.

Exhibit 4-1

SUMMARY OF PREFERRED *Julie N* OIL SPILL RESTORATION ALTERNATIVES AND COSTS

Resource/Service	Proposed Restoration Alternative	Estimated Cost
Marine Community	Portland Oil and Grease Removal Project	$350,000
Wetlands and Birds	Wetland/Bird Habitat Restoration Projects	$475,000
Lost Public Uses	Fore River Trail Project	$125,000
Total Estimated Cost of Implementing Preferred Restoration Alternatives		**$950,000**
Total Estimated Trustee Oversight Costs		**$ 50,000**
Total Restoration and Oversight Costs Payment by RP to Trustees		**$1,000,000**

If the Trustees obtain new information indicating that any of these projects should not be implemented, or if excess funds are available after completion of the projects, the Trustees will select alternative projects for implementation and will provide further public notice to the extent required by OPA and NEPA.